



中心系列讲座 ICQM Weekly Seminar Series
“Two gaps with one energy scale in
cuprate superconductors”



Prof. Shiping Feng (冯世平)
Beijing Normal University

Time: 4:00pm, Oct. 12, 2011 (Wednesday)

时间: 2011年10月12日 (周三) 下午4:00

Venue: Room 607, Conference Room A, Science Building 5

地点: 理科五号楼607会议室

Abstract

The interplay between the superconducting gap and normal-state pseudogap in cuprate superconductors is studied based on the kinetic energy driven superconducting mechanism. It is shown that the interaction between charge carriers and spins directly from the kinetic energy by exchanging spin excitations in the higher power of the doping concentration induces the normal-state pseudogap state in the particle-hole channel and superconducting state in the particle-particle channel, therefore there is a coexistence of the superconducting gap and normal-state pseudogap in the whole superconducting dome. This normal-state pseudogap is closely related to the quasiparticle coherent weight, and is a necessary ingredient for superconductivity in cuprate superconductors. In particular, both the normal-state pseudogap and superconducting gap are dominated by one energy scale, and they are the result of the strong electron correlation.

About the Speaker

冯世平教授，1978.3—1987.7在北京师范大学物理系学习并获博士学位。1987.10—1989.9在美国休斯敦大学超导物理研究中心做博士后研究工作。1990.6被聘为北京师范大学物理系副教授。1992.1—1994.1月在意大利里亚斯特国际理论物理中心合作研究。1994.6被聘为北京师范大学物理系教授。现兼任《物理学报》、Chinese Physics、Communications in Theoretical Physics等学术杂志编委会成员。冯世平教授主要从事强关联多电子系统与高温超导电性的研究，与合作者合作提出了描述强关联多电子系统的一种理论方法，并在此基础上发展了一个动能驱动的高温超导电性理论。入选1994年度国家教育部《跨世纪优秀人才计划》，获1997年度香港求是科技基金会“杰出青年学者奖”，2001年度获国家杰出青年基金资助。